

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing

(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/EP2005/001379

International filing date (day/month/year)

11.02.2005

Priority date (day/month/year)

13.02.2004

International Patent Classification (IPC) or both national classification and IPC
C07D213/57, C07F9/08, A61K31/4422

Applicant

DSM IP ASSETS B.V.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2005/001379

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
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Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application,
- ☒ claims Nos. 1 (part)-13(part), 16 (part)-22(part)

because:

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):
- ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☒ no international search report has been established for the whole application or for said claims Nos. 1 (part)-13(part),16(part)-22(part)
- ☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
 - the written form ☐ has not been furnished
 - ☐ does not comply with the standard
 - the computer readable form ☐ has not been furnished
 - ☐ does not comply with the standard
- ☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.
- ☐ See separate sheet for further details

**WRITTEN OPINION OF THE
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International application No.
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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	6-8,10,11,15-22
	No: Claims	1-5,9,12-14
Inventive step (IS)	Yes: Claims	6-8,10,11,15-22
	No: Claims	1-5,9,12-14
Industrial applicability (IA)	Yes: Claims	1-22
	No: Claims	

2. Citations and explanations

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/EP2005/001379

Re Item III**Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

Present claims relate to an extremely large number of possible compounds in view of the broad definition of the groups R1 and R2. Support within the meaning of Art. 6 PCT and disclosure within the meaning of Art. 5 PCT is to be found, however, for only a very small proportion of the compounds claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible.

In addition to that, the initial phase of the search revealed a very large number of documents relevant to the issue of novelty of the compounds of formula (I). So many documents were retrieved that it is impossible to determine which parts of the claims may be said to define subject-matter for which protection might legitimately be sought (Art. 6 PCT).

In view of these reasons, the search has been limited to the preferred embodiment defined at page 4 lines 9-10 of the description, namely the compounds wherein at least one of the group R1 or R2 is a CN or COOR8 group.

The preliminary examination will concern only in the parts of the claims which have been searched (Rule 66.1 (e) PCT)

Re Item V**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1- Reference is made to the following documents:

- d1: INORGANICA CHIMICA ACTA, vol. 63, 1982, pages 217-224,
- d2: SYNTHETIC METALS, vol. 19, 1987, pages 469-474,
- d3: WO 95/01341 A
- d4: EP-A-1 362 894
- d5: US-A-5 321 130
- d6: US-A-5 734 058
- d7: WO 03/068183

2- Novelty

The subject matter of present claims is partly anticipated by the disclosures of d1 and d2. These two documents disclose salts of the anion AzaTCNQ⁻ (4-dicyanomethylenepyridinium dicyanomethylidene anion) which are encompassed by present claims 1-5,9 and 12 to 14.

From the search carried out in the Chemical Abstracts databases, it appears that other salts of the compound AzaTCNQ⁻ could be disclosed in the following documents:

d8: Bulletin of Chemical Society of Japan (1988), 61 (6), 1831-6

d9: Bulletin of Chemical Society of Japan (1984), 57(8), 2198-202

These documents were not available at the time of completing the search report and will be not considered during the international phase. However, their content could be taken into account in the European regional procedure.

Documents d3 to d6 represent a sample of the documents retrieved which affect the novelty of present formula (I). However, none of these documents discloses compounds relevant in respect to the searched parts of the claims. Accordingly, these documents will not be considered during the international procedure.

Present compounds differ from the compounds of d7 at least on account of the group XY.

3- Inventive step

3.1- The applicant has set himself the task of providing compounds useful for photoprotecting the skin or hair against UV radiation.

Document d7 relates to pyridine and pyrane derivatives having the same use of present compounds. For the purpose of assessing the inventive step during the international phase, it is accepted that present compounds indeed can be used for the protection against UV radiation.

Accordingly, for the novel part of the claims the technical problem can be seen in the provision of further compounds useful for photoprotecting the skin or hair.

3.2- There is no suggestion in d7 for preparing sunscreen agents comprising dihydropyridine derivatives substituted on the nitrogen by an ionic group.

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Accordingly, the novel compounds do meet the requirements of Art. 33.3 PCT.